CS262a: Learning and Reasoning with Bayesian Networks

Syllabus - Winter 2018
http://ccle.ucla.edu

Instructor: Professor Adnan Darwiche. Office Location: 368B Engineering 6. Email: darwiche@cs.ucla.edu. Office Hours: 3:00-4:00pm Monday.

Teaching Assistants:

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Office Hour</th>
<th>Location</th>
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<tbody>
<tr>
<td>Yujia Shen</td>
<td><a href="mailto:yujias@cs.ucla.edu">yujias@cs.ucla.edu</a></td>
<td>4:00-7:00pm, Thursday</td>
<td>BH 2432</td>
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<td>Zhehui Zhang</td>
<td><a href="mailto:zhehui@cs.ucla.edu">zhehui@cs.ucla.edu</a></td>
<td>8am-10am&amp;12pm-1pm, Wednesday</td>
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<td>Zeyu Li</td>
<td><a href="mailto:zyli@cs.ucla.edu">zyli@cs.ucla.edu</a></td>
<td>4:00-7:00pm, Tuesday</td>
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Grading: 30% homework, 30% midterm, and 40% final.

Assignments: Usually released on Thursdays. Late submissions cannot be accepted. In exceptional circumstances, arrangements must be made in advance of the due date to obtain an extension.

Outline: Subject to change. Selected material will be covered from each chapter. Slides will be provided for new material not covered in the book.

1. Introduction to Course and Propositional Logic. (Chapters 1 & 2)
2. Probability Calculus and Bayesian Reasoning. (Chapter 3)
3. Bayesian Networks: Syntax and Semantics. (Chapter 4)
4. Modeling: Applications and Techniques I. (Chapter 5)
5. Modeling: Applications and Techniques II. (Chapter 5)
6. Exact Inference I. (Chapters 6, 9 & 10)
7. Exact Inference II. (Chapters 7 & 8)
8. Circuit Representations of Probabilistic Models I. (Chapter 12)
9. Circuit Representations of Probabilistic Models II.
10. Approximate Inference. (Chapters 14 & 15)
12. Maximum Likelihood Learning I. (Chapter 17)
13. Maximum Likelihood Learning II. (Chapter 17)
14. Bayesian Learning I. (Chapter 18)
15. Bayesian Learning II. (Chapter 18)
17. Causality: Modeling, Reasoning and Learning II.
18. Reasoning About Bayesian Networks: Sensitivity Analysis. (Chapter 16)
20. Structured Bayesian Networks: Learning from Data and Background Knowledge.